

1 : 240

[illegible]

WELL INFORMATION

| | | | | | |
|---|------------------|------------------|--|--|--|
| MWD Run Number | 100 | 200 | | | |
| Date run completed | 24-Dec-13 | 25-Dec-13 | | | |
| Rig Bit Number | 0200 | 0300 | | | |
| Bit Size (in) | 8.750 | 8.750 | | | |
| Tool Nominal OD (in) | 6.750 | 6.750 | | | |
| Log Start Depth (TVD, ft) | 1,258.98 | 7,359.18 | | | |
| Log End Depth (TVD, ft) | 7,359.18 | 7,547.70 | | | |
| Drill or Wipe | Drill | Drill | | | |
| Drill/Wipe Start Date and Time | 22-Dec-13 11:45 | 23-Dec-13 15:06 | | | |
| Drill/Wipe End Date and Time | 24-Dec-13 03:30 | 23-Dec-13 15:06 | | | |
| Min Inc (deg) @ Depth (TVD, ft) | 0.13 @ 1,475.98 | 39.57 @ 7,376.45 | | | |
| Max Inc (deg) @ Depth (TVD, ft) | 34.13 @ 7,338.85 | 88.00 @ 7,546.83 | | | |
| Bit TFA(in2) / Bit Type | 0.98 / PDC | 0.97 / PDC | | | |
| Flow Rate (gpm) | 596.50 | 529.69 | | | |
| Max AV (fpm) / CV (fpm) @ MWD | 472.8 / 472.8 | 417.2 / 417.2 | | | |
| Fluid Type | Fresh Water Gel | Fresh Water Gel | | | |
| Density (ppg) / Viscosity (spqt) | 9.10 / 38.00 | 10.10 / 38.00 | | | |
| Filtrate CL (ppm) | N/A | N/A | | | |
| pH / Fluid Loss (mptm) | 9.50 / 5 | 9.50 / 5 | | | |
| PV (cP) / YP (lbf2) | 14 / 14.00 | 14 / 14.00 | | | |
| % Solids / % Sand | 0.6 / 0.25 | 7.5 / 0.25 | | | |
| % Oil / Oil:Water Ratio | N/A / N/A | N/A / N/A | | | |
| Rm @ Measured Temp (degF) | N/A @ N/A | N/A @ N/A | | | |
| Rmf @ Measured Temp (degF) | N/A @ N/A | N/A @ N/A | | | |
| Rmc @ Measured Temp (degF) | N/A @ N/A | N/A @ N/A | | | |
| Max Tool Temp (in F) / S | 125.50 / PGM | 222.25 / PGM | | | |

| | | | | | |
|-------------------------------|----------------|----------------|--|--|--|
| Max Tool Temp (degF) / Source | 165.58 / PCM | 200.05 / PCM | | | |
| Rm @ Max Tool Temp (degF) | N/A @ 165.58 | N/A @ 200.05 | | | |
| Lead MWD Engineer | Matthew Busche | Matthew Busche | | | |
| Customer Representative | Sam Taylor | Sam Taylor | | | |

SENSOR INFORMATION

Downhole Processor Information

| | | | | | |
|---------------------------|-----------------|-----------------|--|--|--|
| Tool Type | PCM | PCM | | | |
| Software Version | 5.76 | 5.76 | | | |
| Sub Serial Number | 11342277 | 11342277 | | | |
| Insert Serial Number | 11400908 | 11400838 | | | |
| Date and Time Initialized | 21-Dec-13 19:25 | 24-Dec-13 08:10 | | | |
| Date and Time Read | 24-Dec-13 15:04 | 25-Dec-13 18:55 | | | |
| ECMB SW Version | N/A | N/A | | | |

Directional Sensor Information

| | | | | | |
|------------------------|----------|----------|--|--|--|
| Tool Type | PCDC | PCDC | | | |
| Distance From Bit (ft) | 46.19 | 46.20 | | | |
| Software Version | 6.21 | 6.21 | | | |
| Sub Serial Number | 11342277 | 12187590 | | | |
| Sonde Serial Number | 11477984 | 11297493 | | | |
| Sensor ID Number | N/A | N/A | | | |
| Toolface Offset (deg) | 270.40 | 239.66 | | | |

Gamma Ray Sensor Information

| | | | | | |
|------------------------------|----------|----------|--|--|--|
| Tool Type | PCG | PCG | | | |
| Distance From Bit (ft) | 51.14 | 51.15 | | | |
| Recorded Sample Period (sec) | 10 | 10 | | | |
| Software Version | 8.15 | 8.15 | | | |
| Sub Serial Number | 11342277 | 11342277 | | | |
| Insert/Sonde Serial Number | 11579809 | 12071277 | | | |

REMARKS

1. All depths are true vertical depths, referenced to the Driller's pipe tally and

are measured from the Kelly Bushing, unless otherwise specified.

2. No depth corrections have been made for pipe stretch or compression.

3. All data presented is recorded data unless otherwise specified.

4. The final survey is projection at bit

5. The following smoothing parameters have been applied to the data:

PGRC (Corrected Gamma Ray):

Interval Resolution: 0.5 ft

Interval Distance: 0.6 ft

Gap Fill: 3.0 ft

ROPA (Average Rate Of Penetration):

Interval Resolution: 0.5 ft

Interval Distance: 1.2 ft

Gap Fill: 3.0 ft

Insite version: 8.0

WARRANTY

HALLIBURTON WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY OTHER THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY FOR ALL DRILLING, COMPLETION AND PRODUCTION OPERATION. HALLIBURTON MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HALLIBURTON BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HALLIBURTON.

HALLIBURTON

TVD Main Log 1:240

| | | |
|--------------------------------------|---|-----|
| PCG Gamma Ray BCorr (PGRC) api | 0 | 300 |
|--------------------------------------|---|-----|

Average Rate of Penetration
(ROPA)
feet per hr

300

0

Run 100

9.62

1250

1300

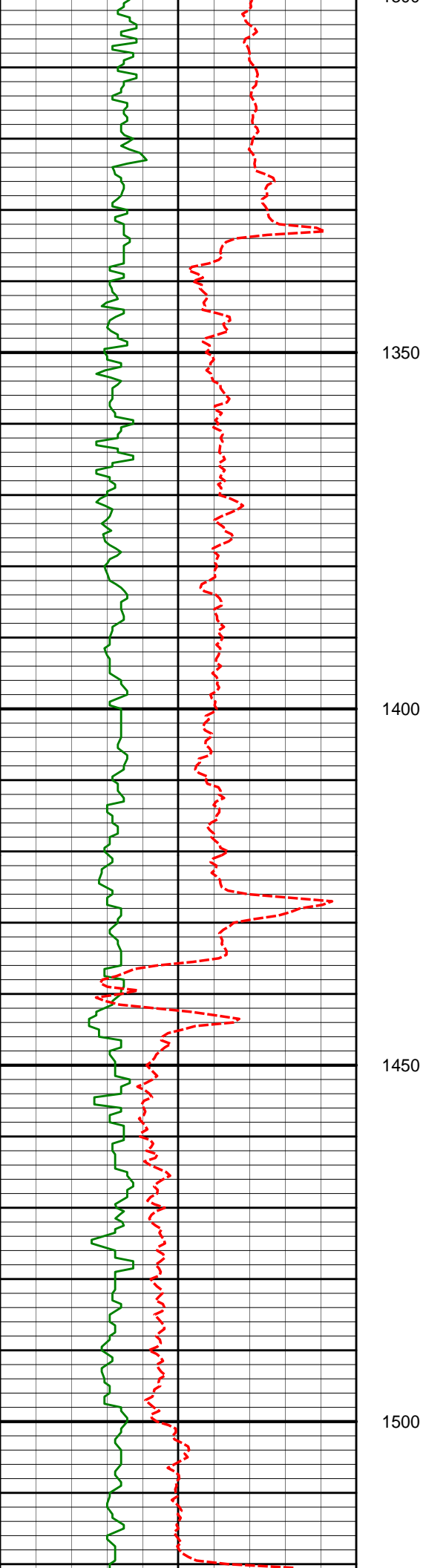
1200

Casing Shoe @ 1236' MD / 1235.98' TVD

Azi

[illegible][illegible]

Run 100



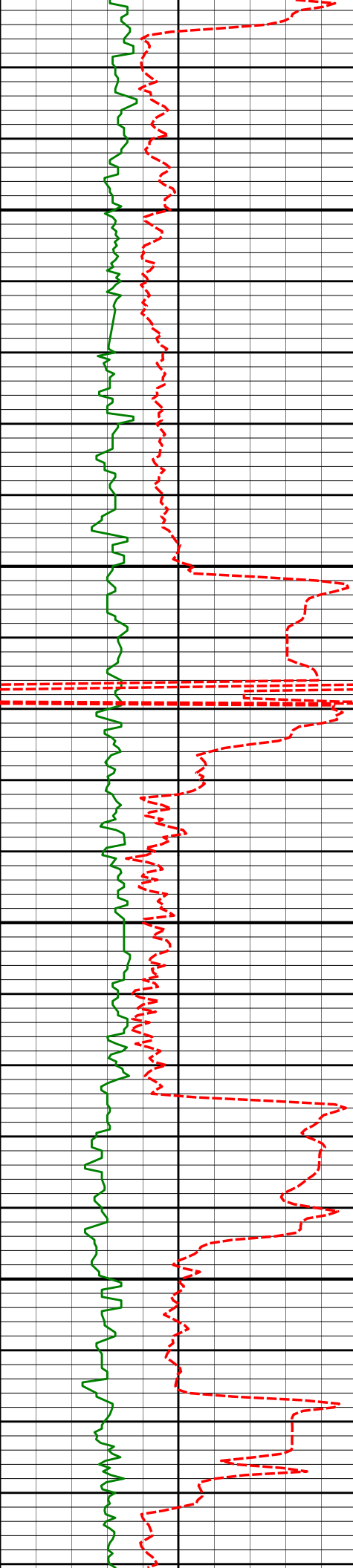
1476'

0.13°

22.48°

1475.98'

-5.05'



1550

1572'

0.19°

136.94°

1571.98'

-5.04'

1600

1650

1666'

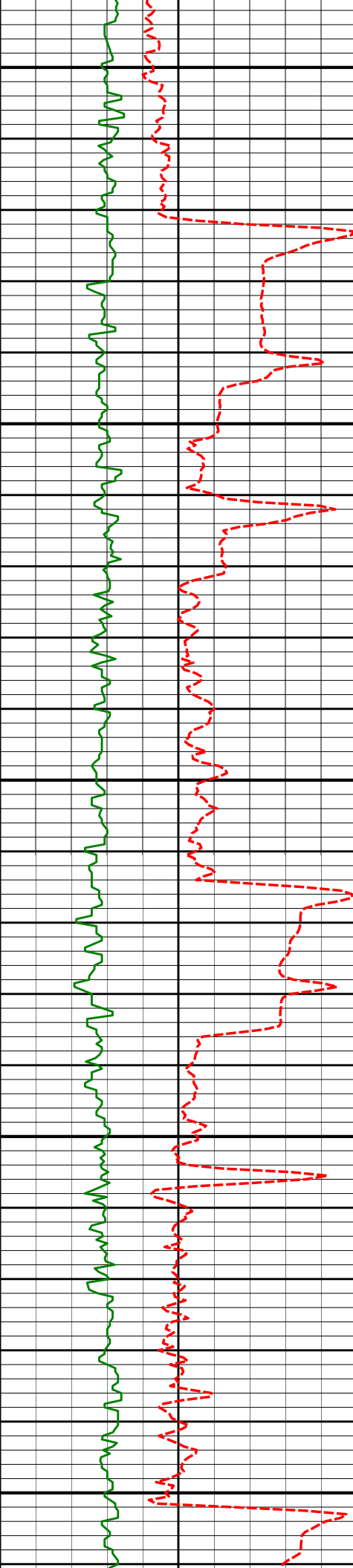
2.33°

319.37°

1665.95'

-6.34'

1700



1750

1760'

3.71°

319.39°

1759.82'

-9.98'

1800

1850

1855'

7.01°

324.18°

1854.39'

-16.83'

1900

1950

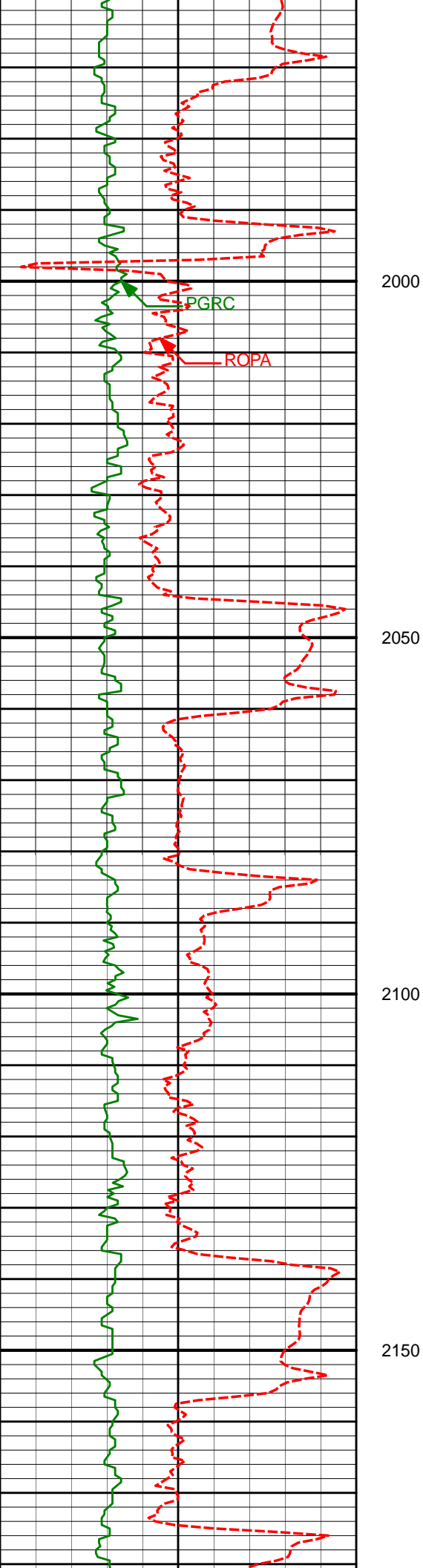
1949'

8.97°

327.57°

1947.48'

-27.40'



2043'

11.33°

325.84°

2040.00'

-40.91'

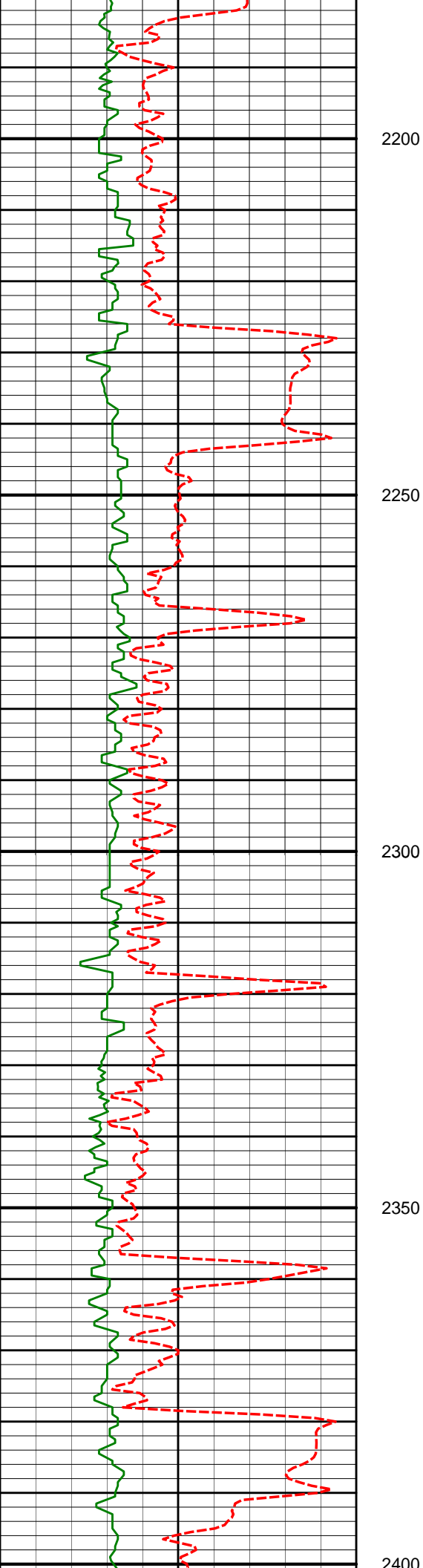
2135'

12.81°

321.33°

2129.97'

-55.94'



2230'

14.24°

313.78°

2222.34'

-71.71'

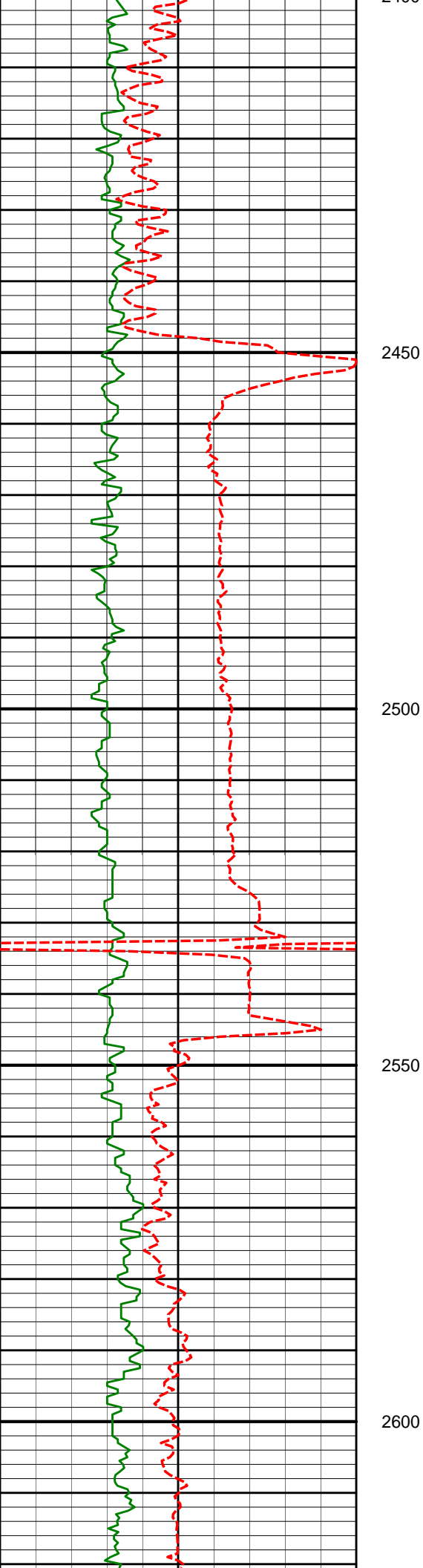
2324'

14.99°

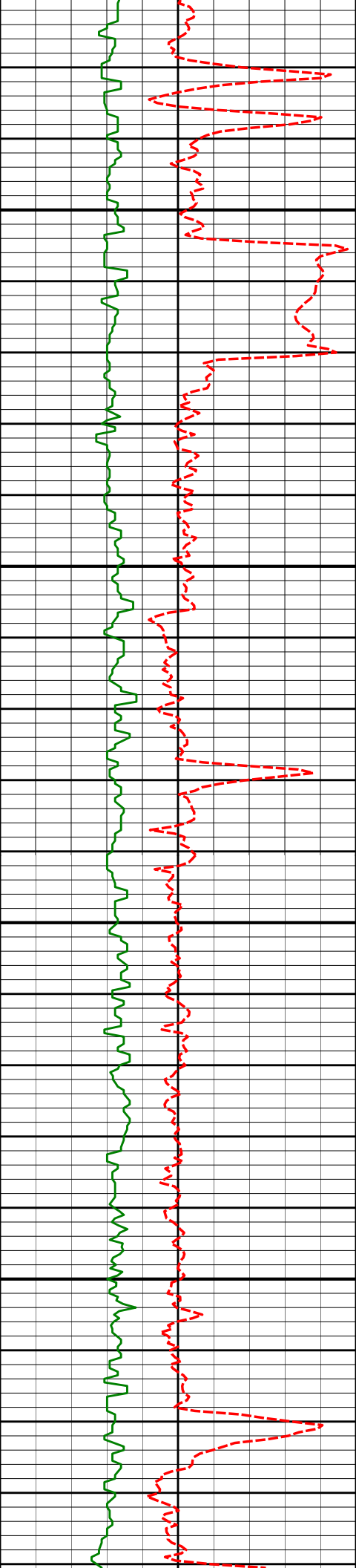
310.91°

2313.29'

-87.05'



| | | | | |
|-------|--------|---------|----------|----------|
| 2418' | 13.16° | 310.80° | 2404.47' | -101.39' |
| | | | | |
| 2512' | 12.58° | 311.22° | 2496.11' | -114.57' |
| | | | | |
| 2606' | 11.84° | 311.27° | 2587.98' | -127.15' |



2650

2700

2750

2800

2700'

13.76°

311.85°

2679.64'

-140.42'

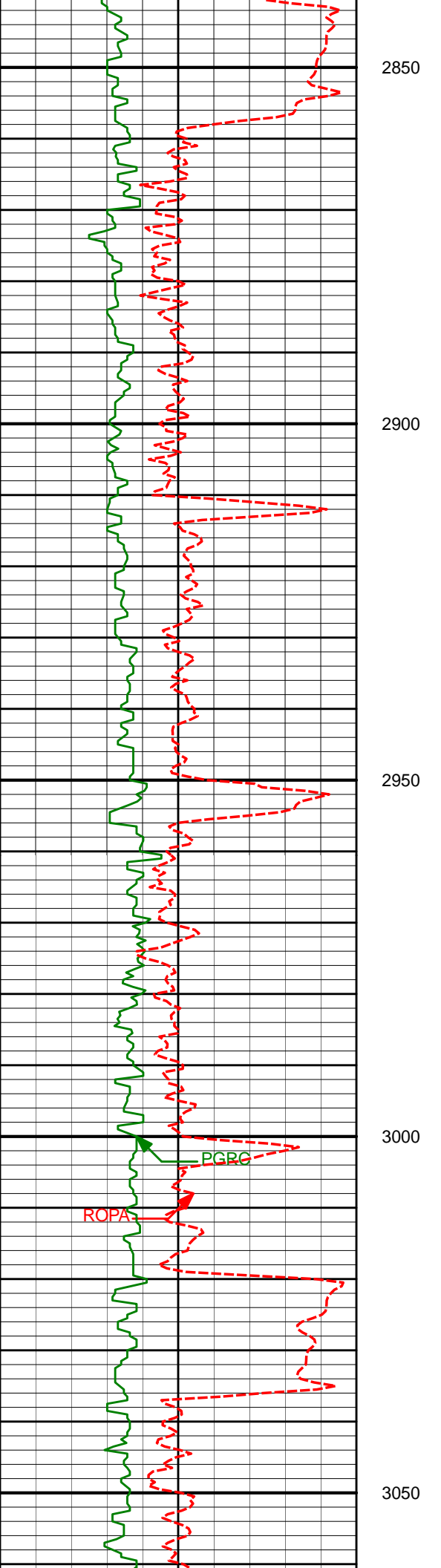
2794'

13.05°

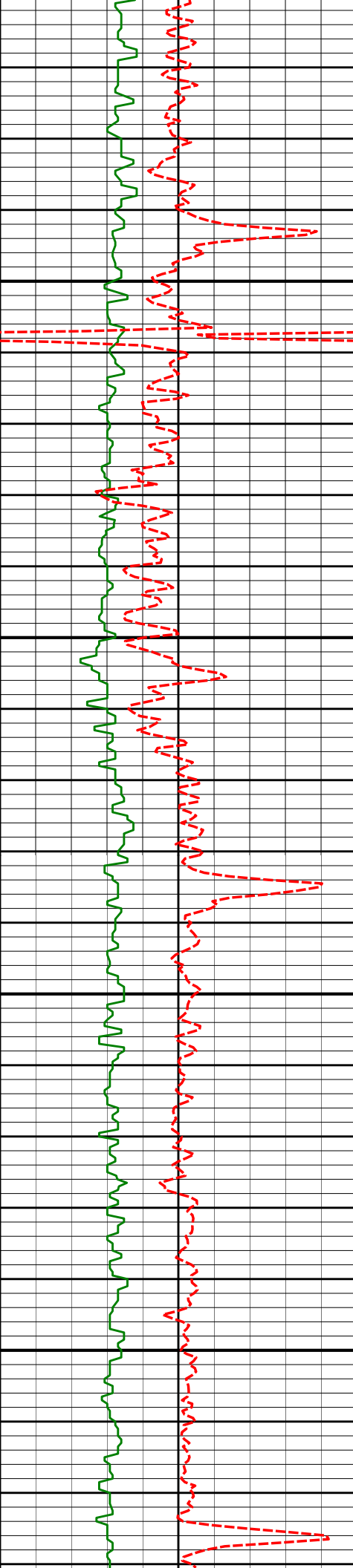
310.35°

2771.08'

-154.17'



| | | | | |
|-------|--------|---------|----------|----------|
| 2888' | 14.01° | 310.86° | 2862.47' | -167.89' |
| 2982' | 13.15° | 308.96° | 2953.84' | -181.46' |
| 3076' | 14.56° | 309.55° | 3045.10' | -195.09' |



3100

3150

3200

3250

3171'

14.32°

308.98°

3137.10'

-209.43'

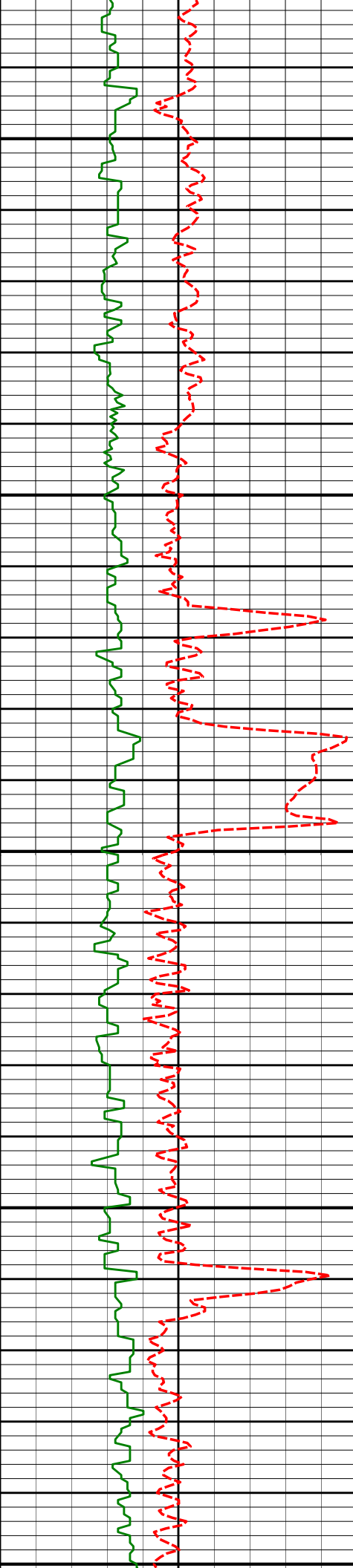
3265'

14.16°

308.69°

3228.21'

-223.30'



3300

3359'

13.83°

307.49°

3319.42'

-236.69'

3350

3400

3454'

14.21°

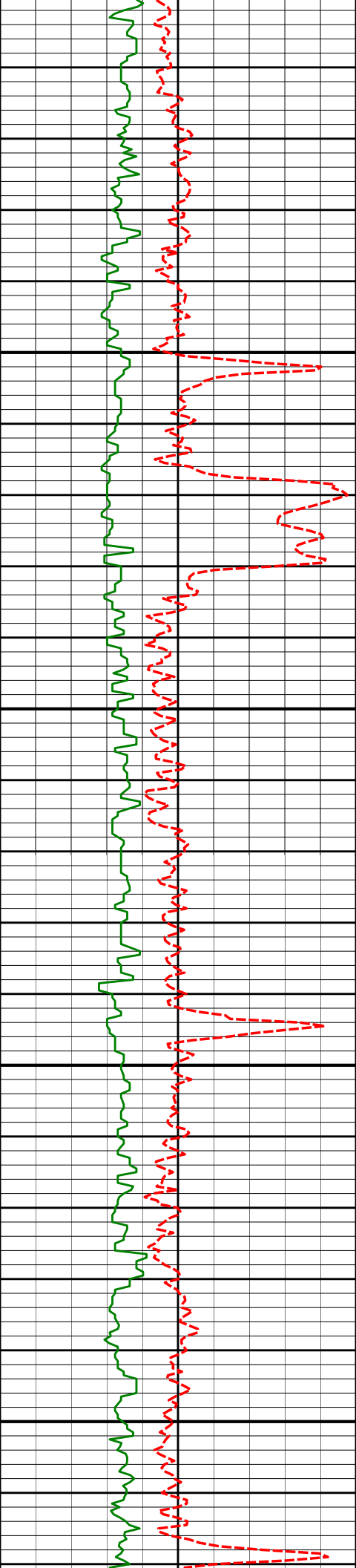
314.12°

3411.60'

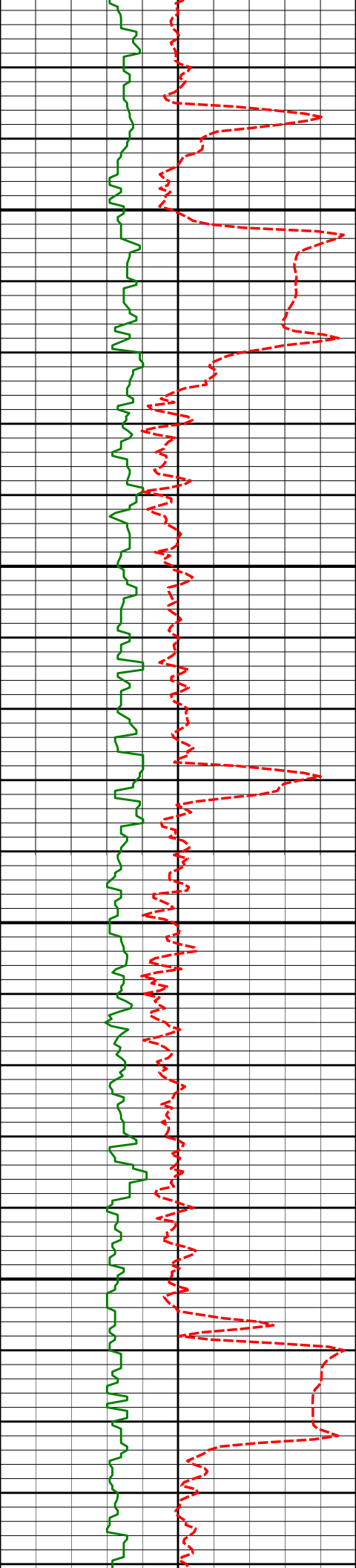
-251.10'

3450

3500



| | | | | |
|-------|--------|---------|----------|----------|
| 3549' | 13.54° | 313.33° | 3503.83' | -266.27' |
| | | | | |
| 3550 | | | | |
| | | | | |
| 3644' | 14.27° | 312.63° | 3596.04' | -281.23' |
| | | | | |
| 3644' | 14.27° | 312.63° | 3596.04' | -281.23' |
| | | | | |
| 3650 | | | | |
| | | | | |
| 3739' | 13.35° | 310.13° | 3688.30' | -295.63' |
| | | | | |
| 3739' | 13.35° | 310.13° | 3688.30' | -295.63' |
| | | | | |
| 3700 | | | | |
| | | | | |
| 3739' | 13.35° | 310.13° | 3688.30' | -295.63' |



3750

3835'

13.82°

317.44°

3781.62'

-310.65'

3800

3850

3930'

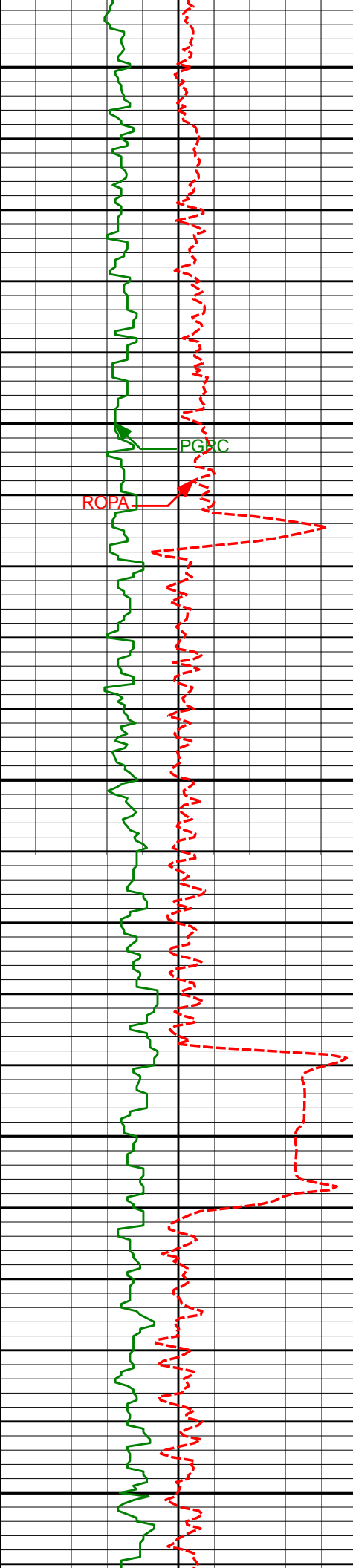
12.96°

315.31°

3874.03'

-326.04'

3900



3950

4025'

13.82°

317.46°

3966.45'

-341.43'

4000

ROPA

PGRC

4050

4120'

12.83°

317.54°

4058.89'

-357.05'

4100

4150

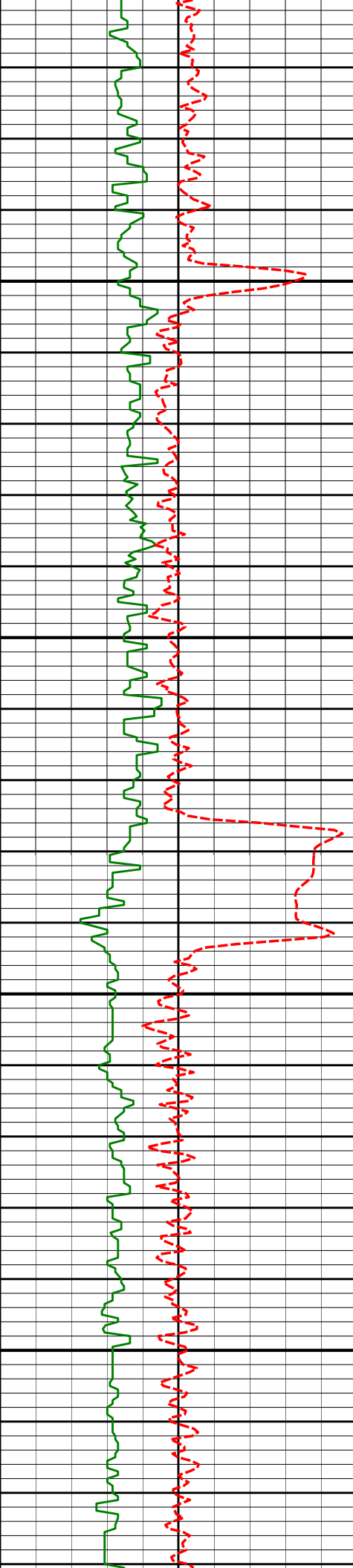
4215'

14.48°

317.34°

4151.20'

-373.03'



4200

4250

4300

4350

4311'

13.34°

317.68°

4244.39'

-389.49'

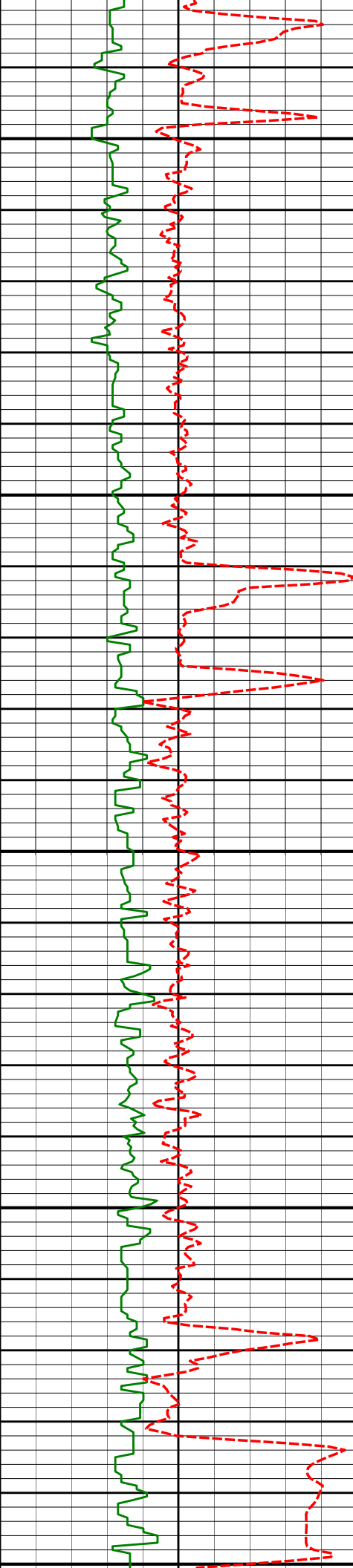
4419'

14.66°

313.02°

4349.18'

-407.37'



4400

4501'

14.71°

313.24°

4428.50'

-421.05'

4450

4500

4596'

13.55°

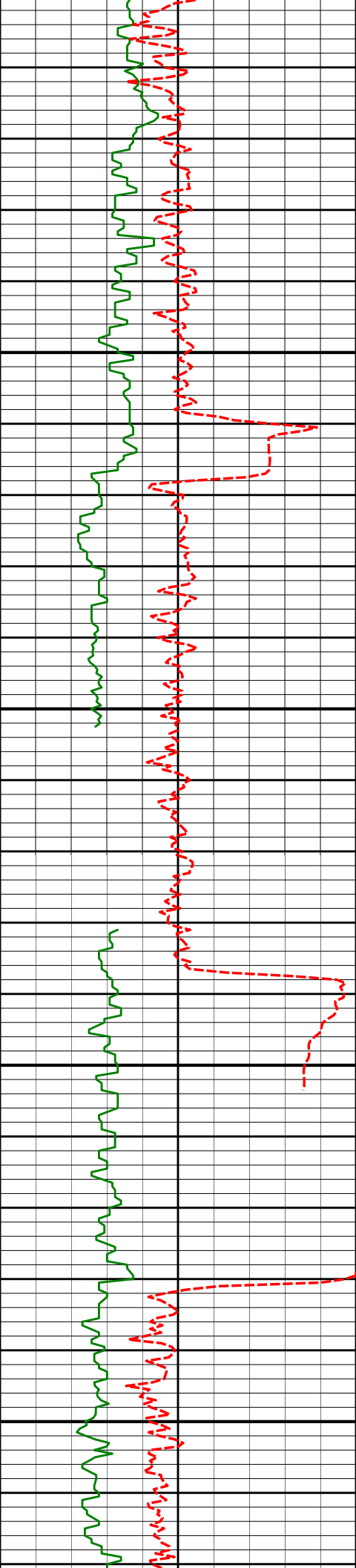
312.68°

4520.63'

-436.25'

4550

4600



4691'

14.24°

309.51°

4612.85'

-450.62'

4650

4700

4786'

13.69°

309.16°

4705.04'

-464.53'

4750

4800

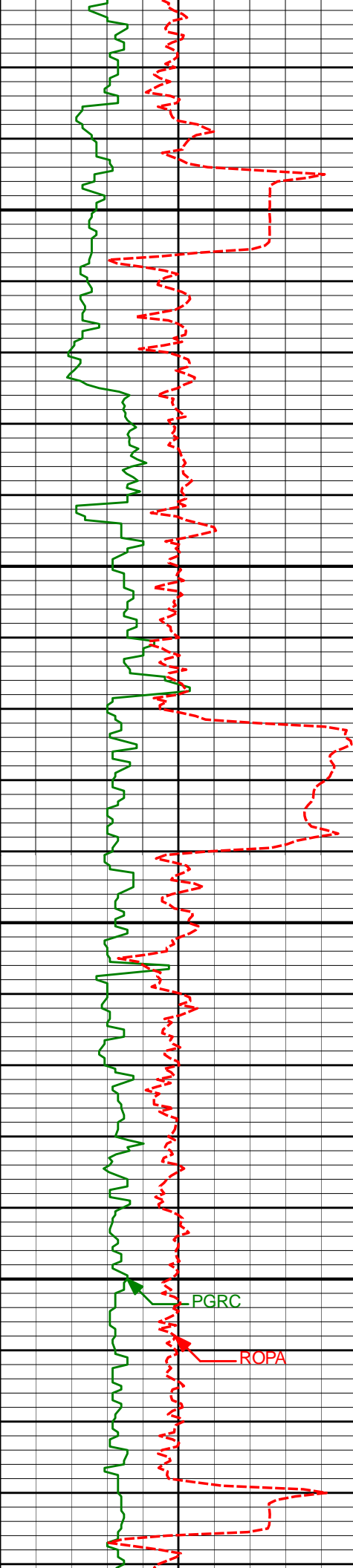
4881'

14.59°

309.66°

4797.16'

-478.63'



4850

4900

4950

5000

PGRC

ROPA

4976'

13.16°

311.75°

4889.39'

-492.85'

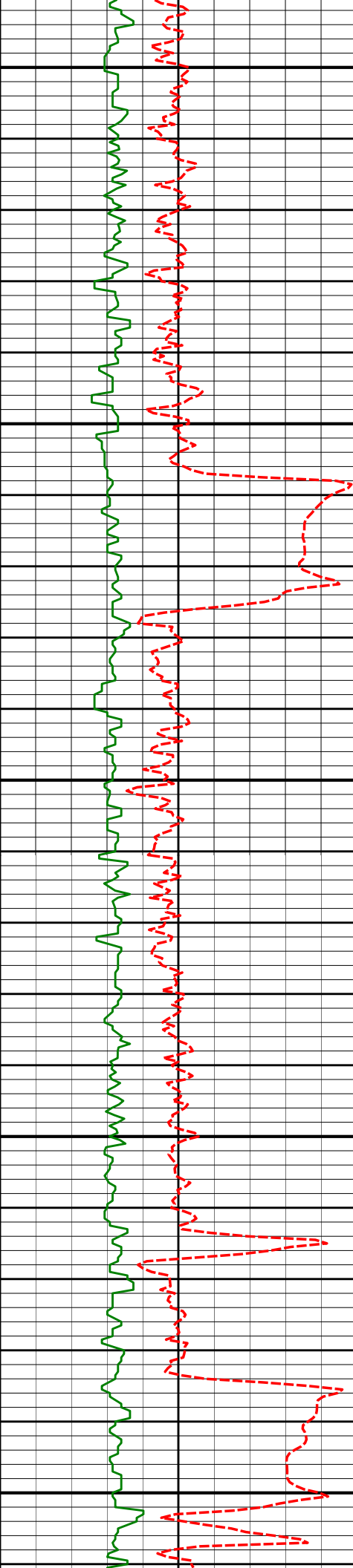
5071'

14.65°

310.80°

4981.60'

-507.30'



5050

5167'

13.32°

309.26°

5074.75'

-521.60'

5100

5150

5262'

13.74°

308.40°

5167.12'

-534.92'

5200

5250

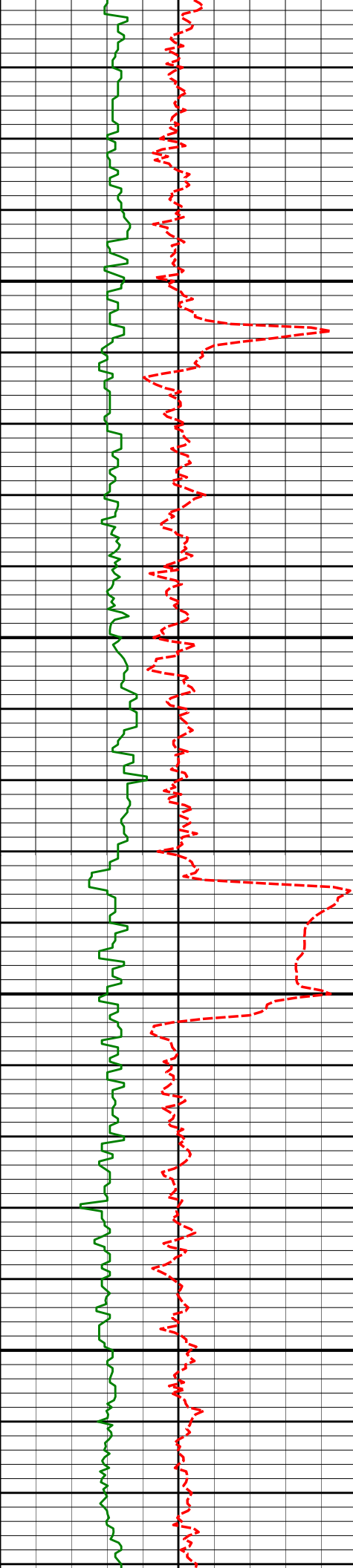
5357'

14.23°

309.16°

5259.30'

-548.67'



5300

5350

5400

5450

5452'

12.93°

308.08°

5351.64'

-561.98'

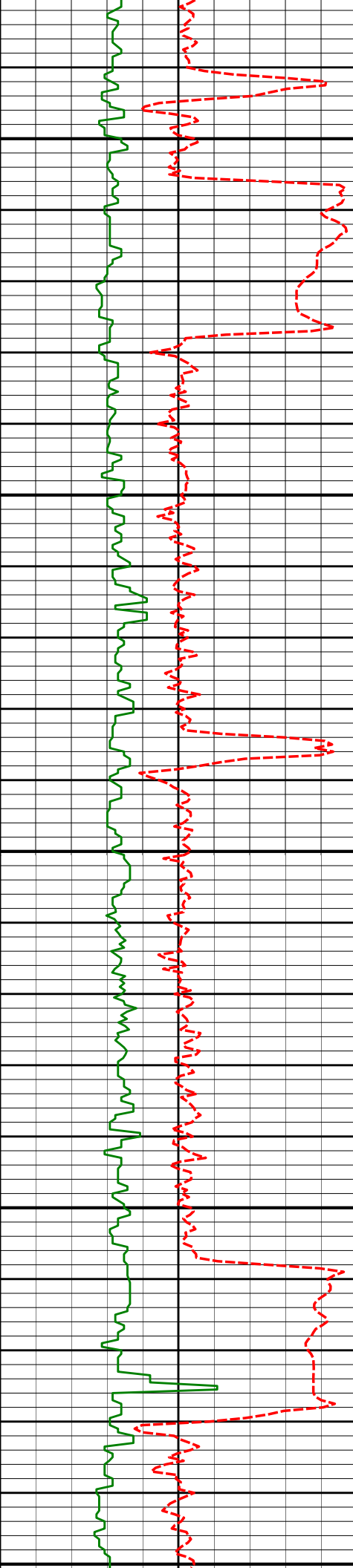
5547'

13.98°

308.35°

5444.03'

-575.04'



5500

5642'

14.65°

309.79°

5536.08'

-589.21'

5550

5600

5738'

12.22°

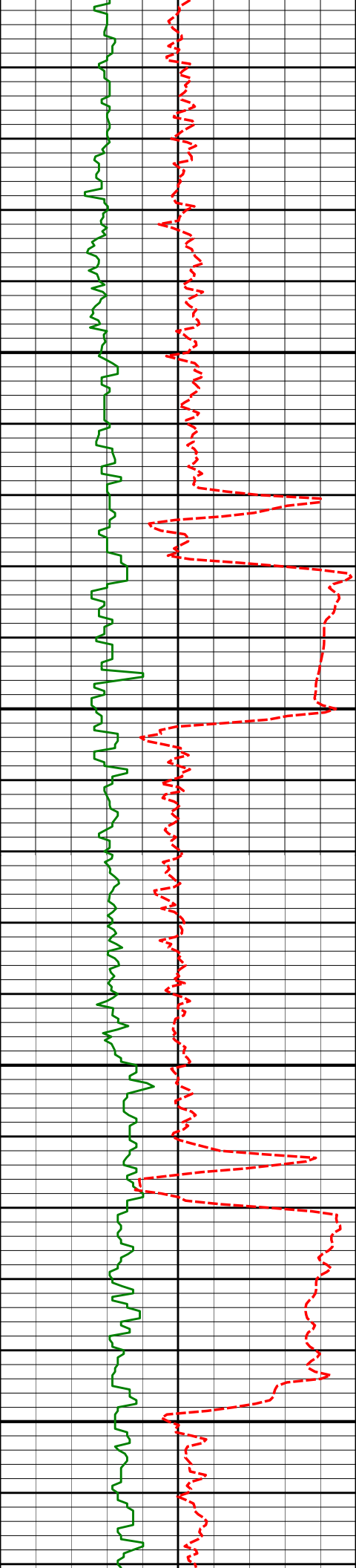
308.10°

5629.45'

-602.63'

5650

5700



5750

5800

5850

5900

5833'

13.29°

305.44°

5722.10'

-614.57'

5928'

13.19°

311.21°

5814.58'

-627.44'

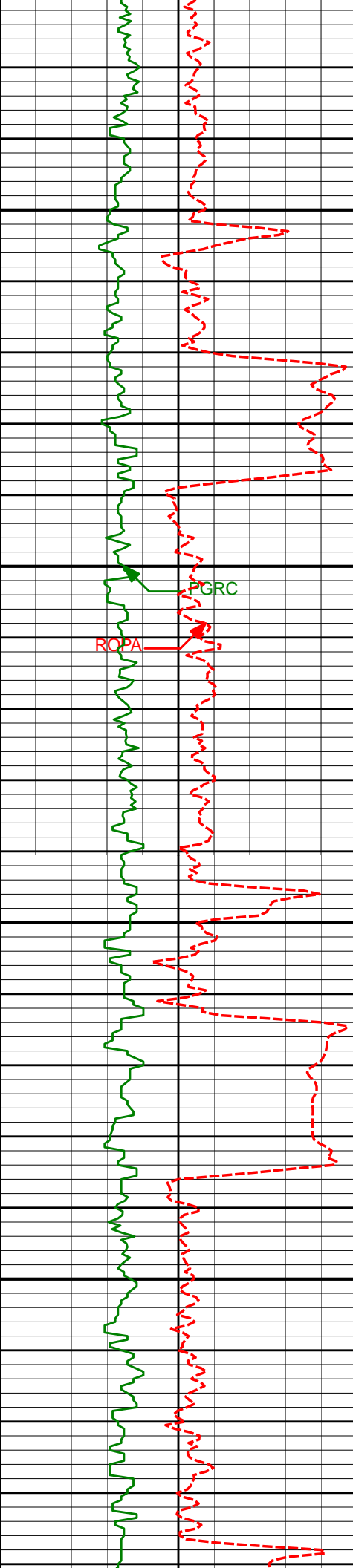
6022'

13.53°

312.78°

5906.04'

-641.41'



5950

6000

6050

6100

6117'

13.27°

312.65°

5998.45'

-655.77'

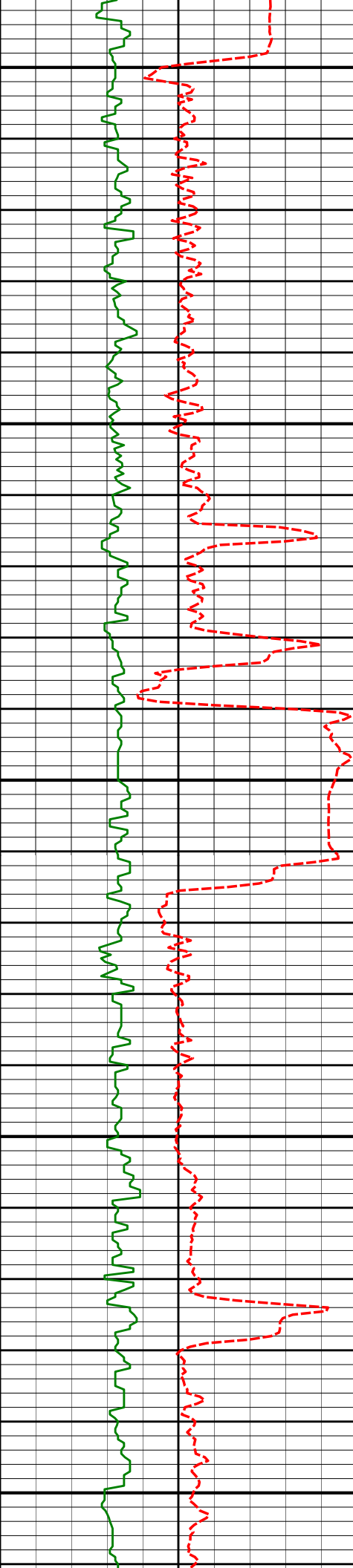
6212'

14.04°

314.21°

6090.77'

-670.61'



6150

6307'

12.16°

311.57°

6183.29'

-684.73'

6200

6250

6402'

12.40°

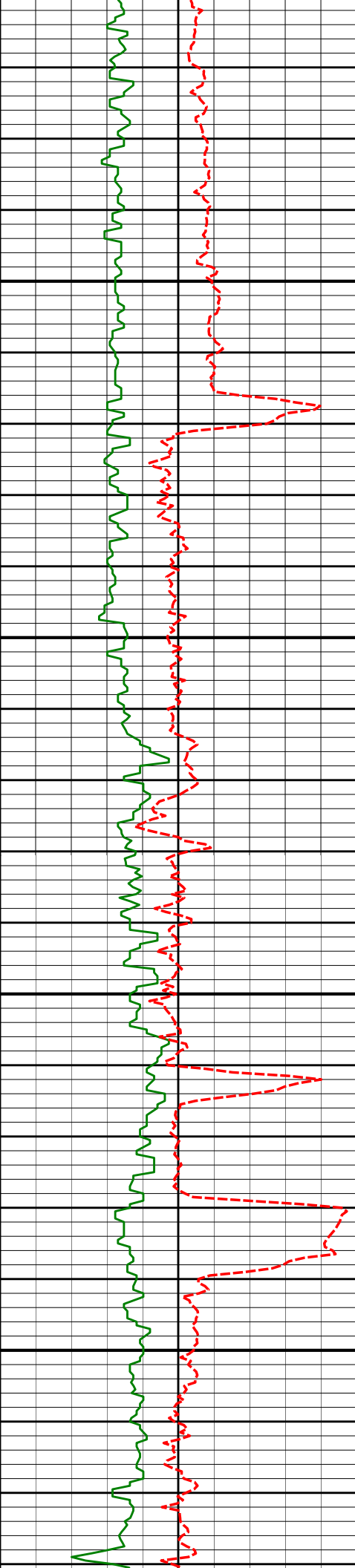
316.53°

6276.12'

-698.26'

6300

6350



6497'

10.32°

315.60°

6369.26'

-711.28'

6400

6450

6592'

8.70°

315.55°

6462.95'

-722.10'

6500

6550

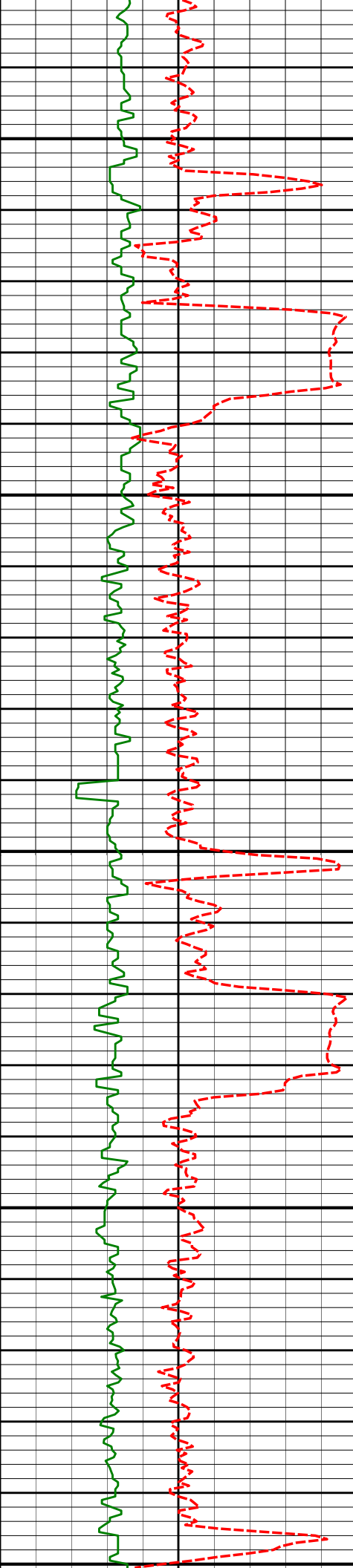
6687'

6.63°

316.57°

6557.09'

-730.90'



6600

6650

6700

6750

6800

6782'

4.25°

325.59°

6651.66'

-737.58'

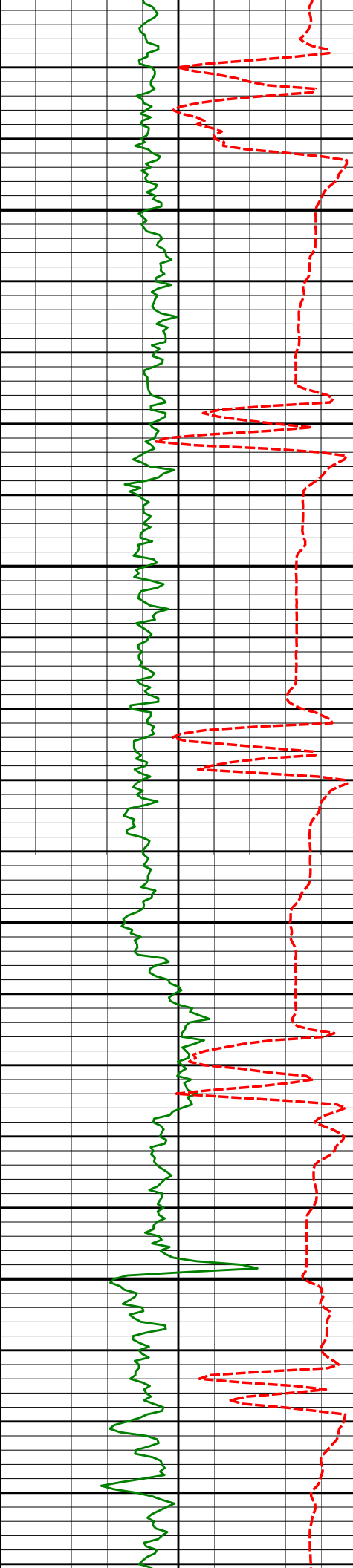
6878'

2.22°

342.74°

6747.50'

-742.20'



7050

7100

7150

7200

7163'

6.94°

185.90°

7032.27'

-739.77'

7211'

11.30°

183.62°

7079.65'

-732.17'

7258'

16.34°

179.37°

7125.28'

-720.95'

7306'

20.68°

181.53°

7170.78'

-705.73'

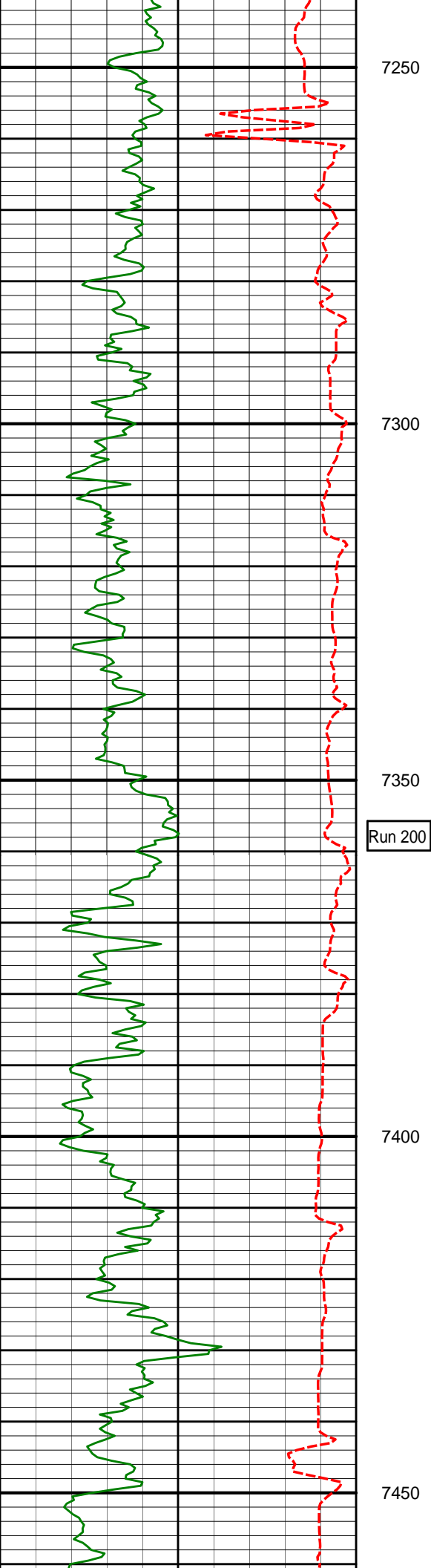
7353'

24.45°

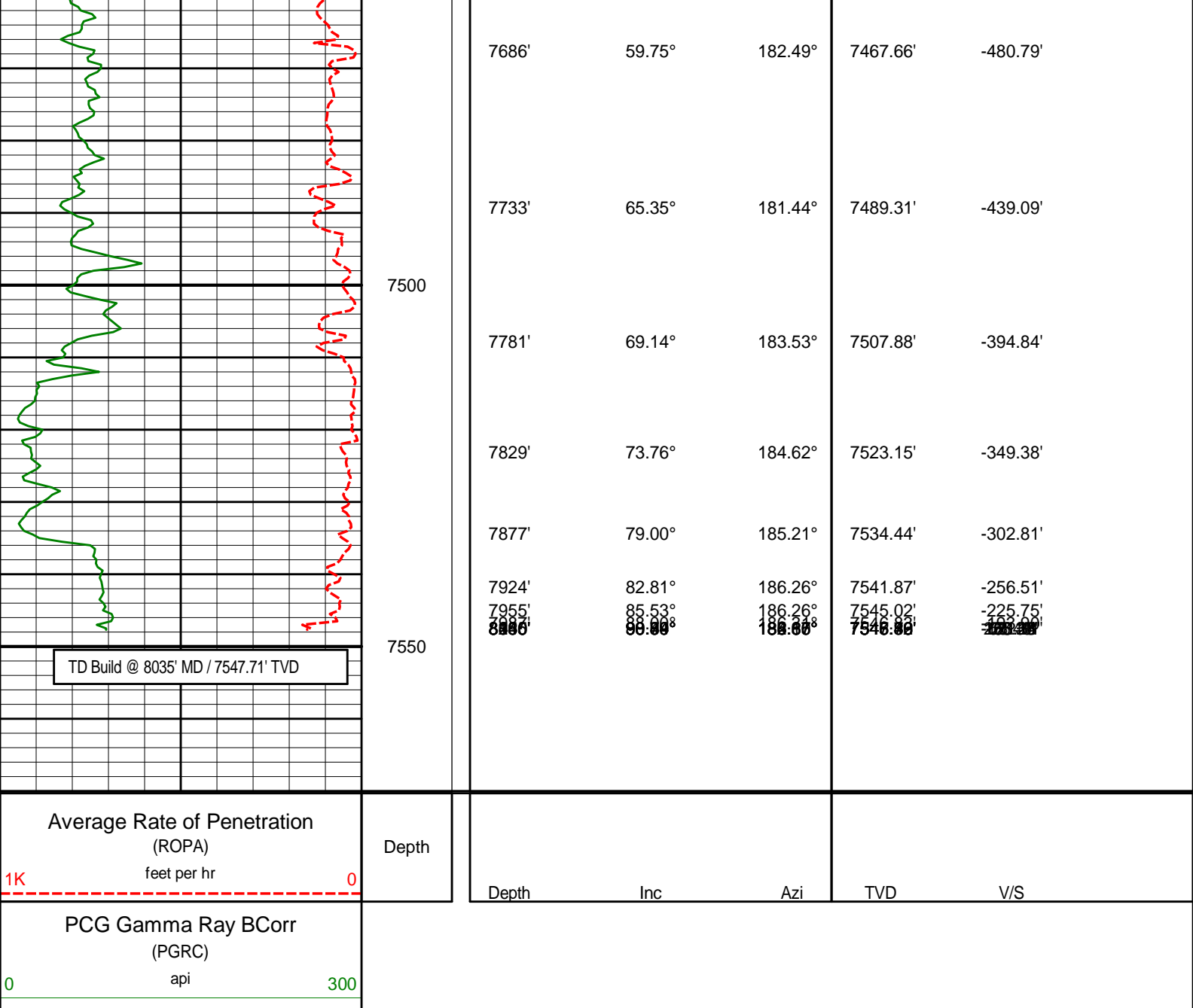
181.41°

7214.18'

-687.69'



| | | | | |
|-------|--------|---------|----------|----------|
| 7401' | 27.52° | 180.78° | 7257.32' | -666.67' |
| 7448' | 30.79° | 179.39° | 7298.36' | -643.79' |
| 7496' | 34.13° | 179.30° | 7338.85' | -618.06' |
| 7543' | 39.57° | 178.82° | 7376.45' | -589.92' |
| 7591' | 46.94° | 180.73° | 7411.39' | -557.08' |
| 7638' | 53.77° | 182.56° | 7441.36' | -520.91' |



HALLIBURTON

DIRECTIONAL SURVEY REPORT

Anadarko Petroleum Corporation
Highway 160 15C-2HZ
Wattenberg
Weld Colorado
USA
CA-XX-0900754412

| Measured Depth (feet) | Inclination (degrees) | Direction (degrees) | Vertical Depth (feet) | Latitude (feet) | Departure (feet) | Vertical Section (feet) | Dogleg (deg/100ft) |
|-----------------------|-----------------------|---------------------|-----------------------|-----------------|------------------|-------------------------|--------------------|
| 1148.00 | 0.25 | 267.43 | 1147.98 | 4.92 N | 4.42 W | -4.76 | TIE-IN |
| 1476.00 | 0.13 | 22.48 | 1475.98 | 5.23 N | 4.99 W | -5.05 | 0.10 |
| 1572.00 | 0.19 | 136.94 | 1571.98 | 5.22 N | 4.84 W | -5.04 | 0.28 |
| 1666.00 | 2.33 | 319.37 | 1665.95 | 6.55 N | 5.98 W | -6.34 | 2.68 |
| 1760.00 | 3.71 | 319.39 | 1759.82 | 10.31 N | 9.20 W | -9.98 | 1.47 |
| 1855.00 | 7.01 | 324.18 | 1854.39 | 17.35 N | 14.60 W | -16.83 | 3.50 |
| 1949.00 | 8.97 | 327.57 | 1947.48 | 28.18 N | 21.89 W | -27.40 | 2.14 |
| 2043.00 | 11.33 | 325.84 | 2040.00 | 42.01 N | 31.00 W | -40.91 | 2.53 |
| 2135.00 | 12.81 | 321.33 | 2129.97 | 57.45 N | 42.45 W | -55.94 | 1.91 |

| | | | | | | | |
|---------|-------|--------|---------|----------|----------|---------|-------|
| 2230.00 | 14.24 | 313.78 | 2222.34 | 73.76 N | 57.47 W | -71.71 | 2.39 |
| 2324.00 | 14.99 | 310.91 | 2313.29 | 89.72 N | 75.00 W | -87.05 | 1.11 |
| 2418.00 | 13.16 | 310.80 | 2404.47 | 104.68 N | 92.29 W | -101.39 | 1.95 |
| 2512.00 | 12.58 | 311.22 | 2496.11 | 118.42 N | 108.09 W | -114.57 | 0.62 |
| 2606.00 | 11.84 | 311.27 | 2587.98 | 131.52 N | 123.04 W | -127.15 | 0.79 |
| 2700.00 | 13.76 | 311.85 | 2679.64 | 145.34 N | 138.62 W | -140.42 | 2.05 |
| 2794.00 | 13.05 | 310.35 | 2771.08 | 159.67 N | 155.03 W | -154.17 | 0.84 |
| 2888.00 | 14.01 | 310.86 | 2862.47 | 173.99 N | 171.73 W | -167.89 | 1.03 |
| 2982.00 | 13.15 | 308.96 | 2953.84 | 188.16 N | 188.65 W | -181.46 | 1.03 |
| 3076.00 | 14.56 | 309.55 | 3045.10 | 202.40 N | 206.07 W | -195.09 | 1.51 |
| 3171.00 | 14.32 | 308.98 | 3137.10 | 217.40 N | 224.41 W | -209.43 | 0.29 |
| 3265.00 | 14.16 | 308.69 | 3228.21 | 231.90 N | 242.43 W | -223.30 | 0.19 |
| 3359.00 | 13.83 | 307.49 | 3319.42 | 245.92 N | 260.31 W | -236.69 | 0.47 |
| 3454.00 | 14.21 | 314.12 | 3411.60 | 260.95 N | 277.70 W | -251.10 | 1.74 |
| 3549.00 | 13.54 | 313.33 | 3503.83 | 276.70 N | 294.16 W | -266.27 | 0.73 |
| 3644.00 | 14.27 | 312.63 | 3596.04 | 292.26 N | 310.86 W | -281.23 | 0.79 |
| 3739.00 | 13.35 | 310.13 | 3688.30 | 307.26 N | 327.86 W | -295.63 | 1.15 |
| 3835.00 | 13.82 | 317.44 | 3781.62 | 322.85 N | 344.09 W | -310.65 | 1.85 |
| 3930.00 | 12.96 | 315.31 | 3874.03 | 338.78 N | 359.26 W | -326.04 | 1.04 |
| 4025.00 | 13.82 | 317.46 | 3966.45 | 354.72 N | 374.42 W | -341.43 | 1.05 |
| 4120.00 | 12.83 | 317.54 | 4058.89 | 370.86 N | 389.21 W | -357.05 | 1.04 |
| 4215.00 | 14.48 | 317.34 | 4151.20 | 387.37 N | 404.38 W | -373.03 | 1.74 |
| 4311.00 | 13.34 | 317.68 | 4244.39 | 404.39 N | 419.97 W | -389.49 | 1.19 |
| 4419.00 | 14.66 | 313.02 | 4349.18 | 422.93 N | 438.36 W | -407.37 | 1.61 |
| 4501.00 | 14.71 | 313.24 | 4428.50 | 437.14 N | 453.53 W | -421.05 | 0.09 |
| 4596.00 | 13.55 | 312.68 | 4520.63 | 452.95 N | 470.49 W | -436.25 | 1.23 |
| 4691.00 | 14.24 | 309.51 | 4612.85 | 467.93 N | 487.69 W | -450.62 | 1.08 |
| 4786.00 | 13.69 | 309.16 | 4705.04 | 482.46 N | 505.42 W | -464.53 | 0.59 |
| 4881.00 | 14.59 | 309.66 | 4797.16 | 497.19 N | 523.35 W | -478.63 | 0.96 |
| 4976.00 | 13.16 | 311.75 | 4889.39 | 512.03 N | 540.63 W | -492.85 | 1.59 |
| 5071.00 | 14.65 | 310.80 | 4981.60 | 527.08 N | 557.79 W | -507.30 | 1.59 |
| 5167.00 | 13.32 | 309.26 | 5074.75 | 542.02 N | 575.55 W | -521.60 | 1.44 |
| 5262.00 | 13.74 | 308.40 | 5167.12 | 555.95 N | 592.86 W | -534.92 | 0.49 |
| 5357.00 | 14.23 | 309.16 | 5259.30 | 570.33 N | 610.76 W | -548.67 | 0.55 |
| 5452.00 | 12.93 | 308.08 | 5351.64 | 584.26 N | 628.18 W | -561.98 | 1.39 |
| 5547.00 | 13.98 | 308.35 | 5444.03 | 597.94 N | 645.55 W | -575.04 | 1.11 |
| 5642.00 | 14.65 | 309.79 | 5536.08 | 612.74 N | 663.78 W | -589.21 | 0.80 |
| 5738.00 | 12.22 | 308.10 | 5629.45 | 626.78 N | 681.10 W | -602.63 | 2.56 |
| 5833.00 | 13.29 | 305.44 | 5722.10 | 639.32 N | 697.91 W | -614.57 | 1.28 |
| 5928.00 | 13.19 | 311.21 | 5814.58 | 652.79 N | 714.96 W | -627.44 | 1.39 |
| 6022.00 | 13.53 | 312.78 | 5906.04 | 667.33 N | 731.10 W | -641.41 | 0.53 |
| 6117.00 | 13.27 | 312.65 | 5998.45 | 682.26 N | 747.28 W | -655.77 | 0.28 |
| 6212.00 | 14.04 | 314.21 | 6090.77 | 697.68 N | 763.56 W | -670.61 | 0.90 |
| 6307.00 | 12.16 | 311.57 | 6183.29 | 712.36 N | 779.30 W | -684.73 | 2.08 |
| 6402.00 | 12.40 | 316.53 | 6276.12 | 726.40 N | 793.81 W | -698.26 | 1.14 |
| 6497.00 | 10.32 | 315.60 | 6369.26 | 739.89 N | 806.78 W | -711.28 | 2.20 |
| 6592.00 | 8.70 | 315.55 | 6462.95 | 751.09 N | 817.76 W | -722.10 | 1.71 |
| 6687.00 | 6.63 | 316.57 | 6557.09 | 760.21 N | 826.57 W | -730.90 | 2.18 |
| 6782.00 | 4.25 | 325.59 | 6651.66 | 767.10 N | 832.33 W | -737.58 | 2.65 |
| 6878.00 | 2.22 | 342.74 | 6747.50 | 771.81 N | 834.89 W | -742.20 | 2.32 |
| 6973.00 | 0.59 | 51.94 | 6842.48 | 773.87 N | 835.05 W | -744.25 | 2.19 |
| 7068.00 | 0.37 | 15.71 | 6937.47 | 774.46 N | 834.58 W | -744.86 | 0.38 |
| 7116.00 | 3.00 | 195.80 | 6985.45 | 773.40 N | 834.88 W | -743.79 | 7.02 |
| 7163.00 | 6.94 | 185.90 | 7032.27 | 769.39 N | 835.51 W | -739.77 | 8.55 |
| 7211.00 | 11.30 | 183.62 | 7079.65 | 761.81 N | 836.10 W | -732.17 | 9.11 |
| 7258.00 | 16.34 | 179.37 | 7125.28 | 750.60 N | 836.32 W | -720.95 | 10.93 |
| 7306.00 | 20.68 | 181.53 | 7170.78 | 735.37 N | 836.48 W | -705.73 | 9.15 |
| 7353.00 | 24.45 | 181.41 | 7214.18 | 717.34 N | 836.94 W | -687.69 | 8.02 |
| 7401.00 | 27.52 | 180.78 | 7257.32 | 696.32 N | 837.33 W | -666.67 | 6.42 |
| 7448.00 | 30.79 | 179.39 | 7298.36 | 673.42 N | 837.35 W | -643.79 | 7.10 |
| 7496.00 | 34.13 | 179.30 | 7338.85 | 647.67 N | 837.06 W | -618.06 | 6.96 |
| 7543.00 | 39.57 | 178.82 | 7376.45 | 619.49 N | 836.59 W | -589.92 | 11.59 |
| 7591.00 | 46.94 | 180.73 | 7411.39 | 586.63 N | 836.49 W | -557.08 | 15.59 |
| 7638.00 | 53.77 | 182.56 | 7441.36 | 550.48 N | 837.56 W | -520.91 | 14.84 |
| 7686.00 | 59.75 | 182.49 | 7467.66 | 510.39 N | 839.33 W | -480.79 | 12.46 |
| 7733.00 | 65.35 | 181.44 | 7489.31 | 468.72 N | 840.75 W | -439.09 | 12.08 |
| 7781.00 | 69.14 | 183.53 | 7507.88 | 424.51 N | 842.68 W | -394.84 | 8.86 |
| 7829.00 | 73.76 | 184.62 | 7523.15 | 379.13 N | 845.92 W | -349.38 | 9.86 |
| 7877.00 | 79.00 | 185.21 | 7534.44 | 332.67 N | 849.92 W | -302.81 | 10.98 |

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT

TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

WD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT
VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 182.00 DEGREES (TRUE)
A TOTAL CORRECTION OF 8.53 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 7877.00 FEET
IS 912.70 FEET ALONG 291.38 DEGREES (TRUE)

All directional surveys tied on to the last gyro survey at 1148.00' MD. Final survey is a projection to the bit.

Date Printed:28 December 2013